REMARKS

The following remarks are responsive to the Final Office Action dated August 19, 2009. Claim 38 has been previously cancelled. Claims 1-37 and 39 are pending.

Claim Rejection Under 35 U.S.C. § 103

In the Final Office Action, the Examiner rejected claims 1–23, 25–37 and 39 under 35 U.S.C. 103(a) as being unpatentable over Kuhl et al. (US 2003/0118026) in view of Callon et al. (US 5,251,205) and further in view of Raychaudhuri et al. (US 5,684,791). Applicant respectfully traverses the rejection. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

First, the applied references lack any teaching to suggest a method comprising storing, within the network device, intermediate class of service (CoS) information that provides a ***universal*** classification mechanism ***independent*** of: (i) ***any layer two protocols*** used within the network, and (ii) protocols of layers on top of layer two protocols used within the network, as required by Applicant's independent claim 1.

Instead, Kuhl in view of the other cited references teach a solution that relies on a an intermediate classification mechanism that is ***dependent*** on layer two protocols. Specifically, the intermediate classification mechanism of Kuhl in view of the other references requires and includes a value of an ATM-specific cell loss priority (CLP) bit taken from ATM cells in accordance with the layer-two ATM protocol. In paragraph [0043], for example, Kuhl indicates that ATM cells include a header 304 that contains a CLP. The CLP bit of the ATM protocol, according to this paragraph of Kuhl, "indicates the drop precedence value of that particular cell." The Kuhl intermediate classification mechanism shown in FIG. 7 "provides an example of a mapping of class of service levels ***and*** drop precedence values to values for [an MPLS] EXP field."[1] Likewise, FIG. 9 of Kuhl shows "a table of a default mapping of class of service ***and*** drop precedence of a cell to a value for the EXP bit field in a MPLS frame …"[2] These two tables shown in FIGS. 7 and 9 of Kuhl define the Kuhl intermediate classification mechanism relied upon by the Examiner. Notably, both of these tables map directly from a class of

[1] ¶ [0070] (Emphasis Added).
[2] ¶ [0027] (Emphasis Added).

service/ATM CLP bit combination to MPLS EXP bits and from an MPLS EXP bit to a class of service/ATM CLP bit combination. The intermediate classification mechanism described by Kuhl to map between ATM and MPLS is therefore a ***protocol-specific*** classification mechanism that is dependent on and specifically includes a layer-two ATM protocol CLP bit.

Callon et al. and Raychaudhuri et al fail to provide any solution that would overcome or supplant these requirements of Kuhl. Kuhl in view of these references therefore lack any teaching to suggest storing, within the network device, intermediate CoS information that provides a ***universal*** classification mechanism ***independent*** of: (i) ***any layer two protocols*** used within the network, and (ii) protocols of layers on top of layer two protocols used within the network.

The Examiner continues to disagree that the Kuhl classification mechanism is dependent on the ATM CLP bit. In the current Final Office Action, the Examiner suggests, under the heading "***Response to Arguments***," sub-heading **Issue 2**, that Kuhl's mapping is done in terms of service categories to class of services and then from class of services to MPLS EXP field bits when stating "[a]ll of these mapping [sic] of *first QoS* ('service categories') → *intermediate QoS* ('class of services') → *second QoS* ('EXP field') are exactly the same as Applicant's mappings … with the only difference, indeed, in from where the *first QoS* is obtained." (Emphasis Examiner's) This is an incorrect reading of the Kuhl reference. As demonstrated above, the intermediate classification mechanism taught by Kuhl maps ***connection-level*** ATM service categories to different combinations of classes of service and ATM CLP bits. Kuhl then maps this **combination** (i.e., the specific combination of a class of service **and ATM CLP bit values**) to the MPLS EXP field bits of a packet. The ATM CLP bit is thus carried over into (and required by) the Kuhl intermediate classification mechanism itself, as evidenced by FIGS. 7 and 9 of the Kuhl reference. These FIGS show that the different levels of the Kuhl's intermediate classification mechanism are defined by the values of the ATM CLP bit.

Moreover, paragraph [0044] of Kuhl indicates that when using the intermediate classification mechanism the CLP bit of the input ATM cell is copied into the header of the internal cell of the device, effectively preserving the CLP bit for future use in mapping the class of service/CLP bit combination to the EXP field bits of the resulting MPLS packet. Consequently, the Kuhl solution relied upon by the Examiner requires a mapping of ***connection-level*** ATM service categories to an intermediate combination that is ATM specific (i.e., a class of

services/CLP bit combination) and then from the class of services/CLP bit combination to the bits of the MPLS EXP field. In this respect, Kuhl's intermediate classification mechanism is substantially different from the ***universal*** classification mechanism of Applicant's claim 1 that is ***independent*** of ***any layer two protocols*** used within the network. For these reasons, the applied references lack any teaching to suggest a method comprising storing, within the network device, intermediate class of service (CoS) information that provides a ***universal*** classification mechanism ***independent*** of: (i) ***any layer two protocols*** used within the network, and (ii) protocols of layers on top of layer two protocols used within the network, as required by Applicant's independent claim 1

Second, Kuhl in view of the other references lacks any teaching to suggest accessing the first CoS information ***within the packet*** to determine the class of service for the packet and mapping the first CoS information to the intermediate CoS information based on the class of service determined for the packet, as further required by Applicant's claim 1. As noted above, Kuhl only teaches to mapping ***connection-level*** service categories to a class of service.[3] Instead of accessing the first COS information ***within*** the packet (i.e., COS information taken from the packet) and mapping this first CoS information to the intermediate CoS information, as required by claim 1, the Kuhl switch maps the connection-level service categories to a class of service. That is, the Kuhl switch uses service categories for connections as a whole for its mapping mechanism. The Kuhl intermediate mapping mechanism does not teach a solution that maps CoS information on a per-packet basis. Moreover, Kuhl teaches away from accessing the first CoS information ***within*** the packet and mapping this CoS information to a class of service when describing how the CLP bit included within the packet is copied directly from the packet to the header of the internal cell. Consequently, Kuhl teaches to mapping connection-level service categories to a class of service, not to accessing the first CoS information ***within the packet*** to determine the class of service for the packet and mapping the first CoS information to the intermediate CoS information based on the class of service determined for the packet, as required by Applicant's claim 1. The other references fail to provide any teaching that would overcome this requirement of Kuhl.

In the portion of the current Final Office Action labeled "***Response to Arguments***," subheading "**Issue 1**," the Examiner agrees that the applied references lack any teaching to

[3] ¶¶s [0007] and [0030].

suggest accessing the first COS information within the packet to determine the class of service for the packet. The Examiner then respectfully concludes that whether or not the applied references access the first COS information within the packet to determine the class of service for the packet is "substantially irrelevant because such teaching, especially the part of 'within the packet' was provided in a second reference." The Examiner misunderstands Applicant's argument.

Applicant is not arguing as to whether Kuhl teaches to accessing first CoS information within the packet, but to mapping first CoS information stored within the packet to intermediate CoS information. Kuhl teaches to mapping ATM service categories defined when establishing an ATM connection to class of services. These service categories are not included within the packet but relate to a network connection as a whole. Kuhl therefore specifically teaches only to mapping these connection-level service categories defined at the time an ATM connection is established to class of services. The Kuhl solution requires this approach used in conjunction with carrying through the actual value of a CLP bit from the ATM header. These technical requirements of the Kuhl solution cannot simply be dismissed by the Examiner by citation to another reference that merely mentions that packets can carry CoS information. Even when combined, the teachings of Kuhl in view of the other references still require a mapping that is based on connection-level CoS information as this is the only intermediate mapping solution taught by the references, either individually or in combination. The Examiner is improperly attempting to extrapolate to fill in technical deficiencies of the prior art to achieve Applicant's invention in ways that are inconsistent with and not taught by the solutions of the prior art. The Kuhl solution teaches away from mapping packet-level or first CoS information stored within the packet to intermediate CoS information, contrary to the Examiner's assertions otherwise. The Examiner apparently overlooks the fact that Kuhl teaches to an intermediate classification mechanism that only maps connection-level service categories (i.e., service categories for connections as a whole when the connection is established) to a class of service. For packet-level or class of service information included within the packet, which the Examiner construes as the CLP bit of the ATM header, Kuhl teaches that this information is ***copied*** from the ATM cell to the internal cell of the device. This direct use of the protocol-specific value from the ATM cell is directly counter to Applicant's claimed approach and teaches away from any form of

mapping first CoS information stored within the packet to intermediate CoS information, as required by Applicant's claim 1.

As another example, when translating in the opposite direction from MPLS to ATM, the Kuhl intermediate classification mechanism maps MPLS EXP bits included within the packet to a combination of a class of service for the entire network connection and a specific value for an ATM CLP bit. By no means can the Kuhl intermediate classification mechanism be considered universal and protocol independent as required by Applicant's claims in this MPLS-to-ATM direction as the mapping produces a class of service/CLP bit ***combination*** that is entirely ***dependent*** on an ATM-specific CLP bit defined by a layer two protocol, i.e., the ATM protocol. In this direction, Kuhl teaches that the Kuhl classification mechanism is dependent on the CLP bit, which is defined by a layer two protocol. Consequently, Kuhl's classification mechanism is opposite the universal classification mechanism of Applicant's claim 1 that is independent of any layer two protocols.

Thus, while Kuhl teaches to mapping EXP bits within the MPLS packet to dependent class of service/CLP bit combinations, this by no means can be construed as the ***universal classification mechanism*** required by Applicant's claim 1. To the extent that service connections are mapped to a class of service, this mapping involves mapping ***connection-level***, not packet level, information to a class of service. Moreover, the Kuhl system does not map the CLP bit included within ATM cells but instead ***directly copies*** the CLP bit to the internal cells. In this respect, Kuhl provides no solution capable of accessing the first CoS information within the packet to determine the class of service for the packet and mapping the first CoS information to the intermediate CoS information based on the class of service determined for the packet, also as required by Applicant's claim 1.

None of the other references cited by the Examiner in rejecting claim 1 overcome the deficiencies of Kuhl noted above with respect to claim 1; nor could they be used to reach such a solution. In the rejection of claim 1, the Examiner indicates in a note near the bottom of page 18 of the current Final Office Action, that "Kuhl in view of Raychaudhuri will be able to perform a full 'class of service' mapping on per-cell instead of per-connection basis." (Emphasis Examiner's) The Examiner continues in this note to state that "Kuhl in view of Raychaudhuri will receive ATM cells with the embedded 'service type definition' bits , added by Raychaudhuri, which is the same same as Kuhl's 'service class/category 502', in an ingress

'ATM cell 300/620' header, use 'mapping 600' policy or table 500 in fig. 5 to map the ATM 'service/category 502' (fig.5) to internal 'class of service 508' (fig. 5), then use 'mapping 614' policy or table 700 in fig. 7 to map corresponding internal 'class of service 702' (fig. 7), which is the same 'class of service 508' of fig. 5, in conjunction with 'CLP = 0/1' values, to various different MPLS 'EXP values' ranging from 0 to 7 as shown in columns 704/706 of fig. 7." Applicant disagrees.

The Examiner has improperly combined Kuhl and Raychaudhuri to reach the invention set forth in Applicant's claim 1. To illustrate, consider that Kuhl teaches a dedicated classification mechanism that 1) maps class of service information defined for a network connection to a class of service, 2) copies an ATM CLP bit stored within the packet to the internal packet and 3) maps MPLS EXP bits to a class of service/CLP bit combination. With respect to ATM-to-MPLS conversions, the Kuhl teachings can be summarized as mapping connection-level information to intermediate information and copying protocol-specific packet-level information directly from the input ATM cell to the output MPLS packet.

The Examiner seeks to overcome these deficiencies by reling on Raychaudhuri, which teaches merely that the header of wireless ATM cells, as shown in FIG. 3A, may enable other functions such as a service type definition.[4] In other words, Raychaudhuri teaches to embedding service types in the header of each wireless ATM cell. Since the literal intermediate mapping solution of Kuhl copies packet-level information from the input ATM cell to the internal cell, the combination of Kuhl and Raychaudhuri would result in a combined system that copies the embedded Raychaudhuri service type from the ATM header to the internal cell in accordance with the teachings of Kuhl. This combination does not teach or suggest a solution that maps embedded Raychaudhuri service type from the packet itself to a protocol-independent intermediate class of service. The system taught by the combined references would necessarily still map ATM service categories defined for the connection ***as a whole*** and copy the values from the ATM header (including the additional header information proposed by Raychaudhuri). Consequently, even if the teachings of Kuhl and Raychaudhuri were combined, the resultant system would still not achieve the invention set forth in Applicant's claim 1.

To be clear, the system resulting from the combination of Kuhl and Raychaudhuri would have: 1) mapped service categories defined for a connection as a whole to a class of service, 2)

[4] Column 5, lines 34-37.

copied the Raychaudhuri service type definition and/or the CLP bit defined within the header of an ATM cell to the header of the internal ATM cell within the network device, and 3) mapped MPLS EXP bits to a combination of a class of service and a CLP bit (and/or Raychaudhuri service type definition) combination. Similar to the Kuhl system, this combined system would have still provided a classification mechanism ***dependent*** on a layer two protocol and, specifically, on the Raychaudhuri service type definition specified by the layer two wireless ATM protocol contrary to the universal classification mechanism required by Applicant's claim 1. Moreover, the combined system would have also only copied the Raychaudhuri service type definition from the wireless ATM cell to the internal cell rather than access the first CoS information within the packet to determine the class of service for the packet and map the first CoS information to the intermediate CoS information based on the class of service determined for the packet, as required by Applicant's claim 1.

Callon also does not overcome the deficiencies noted above with respect to either Kuhl or the combination of Kuhl and Raychaudhuri. The Examiner relies on Callon to teach or suggest a method/device/system that supports at least three or more network protocols. Yet, none of the portions of Callon cited by the Examiner overcome the teachings of Kuhl regarding copying packet-level information from the ATM cell to the internal cell. Consequently, the system that would have resulted from the combination of Kuhl, Callon and Raychaudhuri would not have provided a universal classification mechanism independent of layer two protocols, as required by Applicant's claim 1. Moreover, the Kuhl/Callon/Raychaudhuri system would not have accessed the first CoS information within the packet to determine the class of service for the packet and mapped the first CoS information to the intermediate CoS information based on the class of service determined for the packet, as required by Applicant's claim 1.

To the extent independent claims 15, 26, 29 and 34 recite similar limitation to those of claim 1 on which the above arguments are predicated, the arguments made above with respect to claim 1 apply to independent claims 15, 26, 29 and 34.

By virtue of claims 2-14, 16-23, 25, 27, 28, 30-33, 35, 36 and 39 depending from independent claims 1, 15, 26, 29 and 34, the arguments made above with respect to independent claims 1, 15, 26, 29 and 34 apply to claims 2-14, 16-23, 25, 27, 28, 30-33, 35, 36 and 39, respectively.

For at least these reasons, the applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

In the Office Action, the Examiner rejected claim 24 under 35 U.S.C. 103(a) as being unpatentable over Kuhl in view of Callon and Raychaudhuri and further in view of Hughes et al. (US 6,434,612). Applicant respectfully traverses the rejection. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested a rational reason to arrive at the claimed invention.

Specifically, the additional reference cited by the Examiner, i.e., the Hughes reference, does not overcome the deficiencies noted above with respect to claim 1. The Examiner cited Hughes as teaching to a logical interface. However, the portions of Hughes cited by the Examiner do not overcome the deficiencies of the other applied references, as noted above. Consequently, the applied references fail to disclose or suggest the inventions defined by Applicant's claims and provide no teaching that would have suggested a rational reason to arrive at the claimed invention.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 1-37 and 39 under 35 U.S.C. 103(a). Withdrawal of these rejections is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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